

# Common User Profile Format

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# WSIS+15

FORUM 2020

# Common User Profile Format

- Creating a common user profile format to offer personalized service to people with different range of abilities
- Deploying in a device and application independent format
- Adapting user interface parameters like font size, colour contrast, audio volume, arrangement of screen elements and so on
- Following up earlier similar work at EU standardization committee on user modelling, ITU FG AVA and presently Q11/9 of ITU SG9 and Q26 of ITU SG 16.



# Definition

## User Model

- A set of user characteristics required to describe the user of a product.
  - The characteristics are represented by variables.
  - The user model is established by the declaration of these variables.
  - It is formally described in a machine-readable and human-readable format.

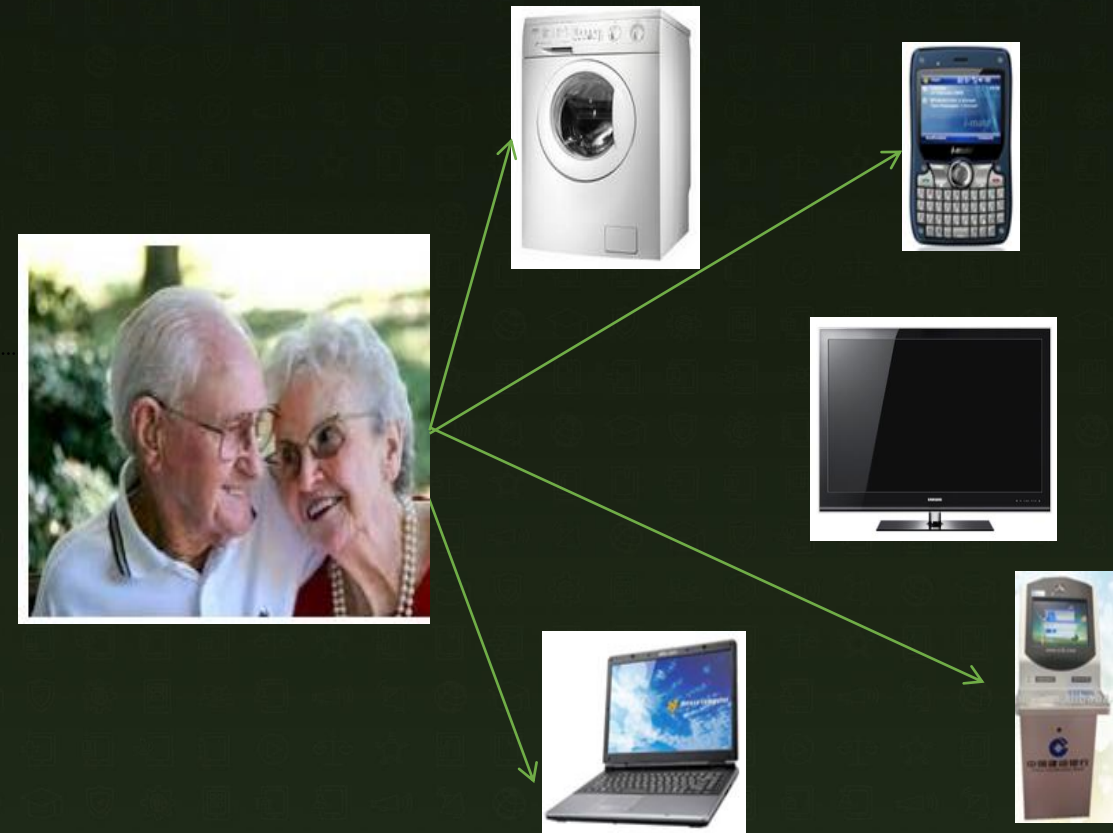
## User Profile

- A user profile is an instantiation of a user model
  - representing either a specific real user or a representative of a group of real users.
  - It is an instantiation of an (abstract) user model and it is formally described in a machine-readable and human-readable format



# Utility

- Simulate users' interaction in terms of visual perception and cursor hand movement
- Adapt user interface and user interaction to enhance accessibility and usability
- Common metadata format for delivering accessibility service across platforms



# Security Aspects

- Format does not specify the physical or network media for storage
- Format does not specify any encryption algorithm or range (end-to-end vs others)
- Profile is stored anonymously
- Profile needs not to be stored on server, can only be stored on client side
- A mapping mechanism can be implemented to share only interface parameters and profile information can be stored on client machine only.
- However, a trusted source can also keep a common repository and use it to personalize applications across multiple platforms



# Ways of Integration

Invoking a mapping application between users' range of abilities and interface parameters

- Executing at server side
- Executing at client machine

Choosing appropriate stylesheet based on user profile

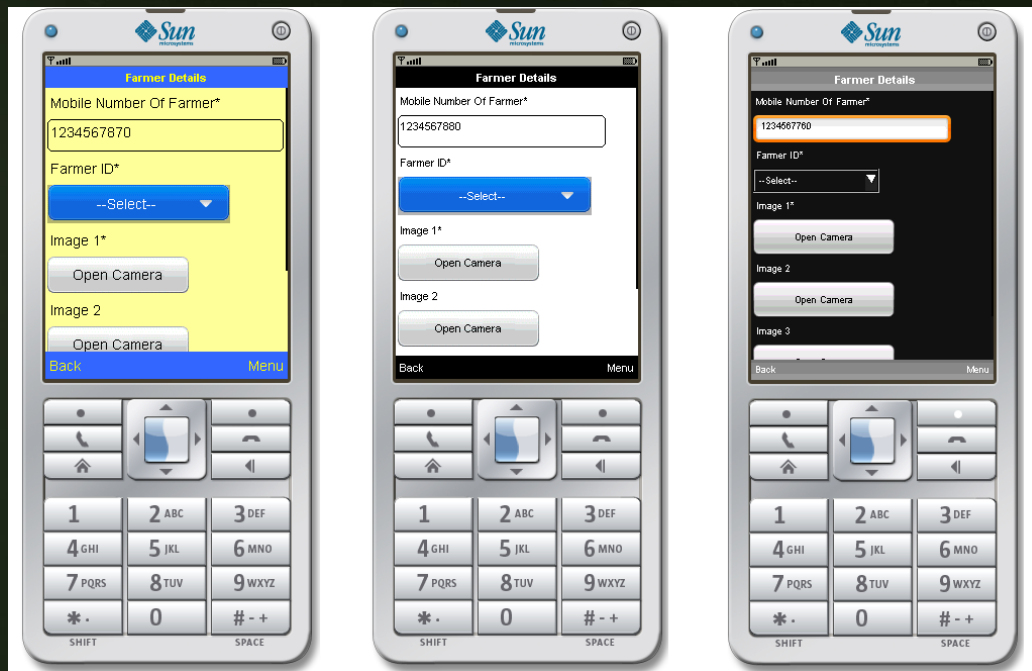
Modifying settings at

- Application level
- Browser level
- Operating System level



# Personalized Agri-Advisory System

(low end mobile phone based)



- The common format can be used for low end mobile phone application as well
- Developers can implement their own mapping mechanism taking the common format as input
- Same interface settings can be mapped across devices without needing users to sign up or adjust settings multiple times

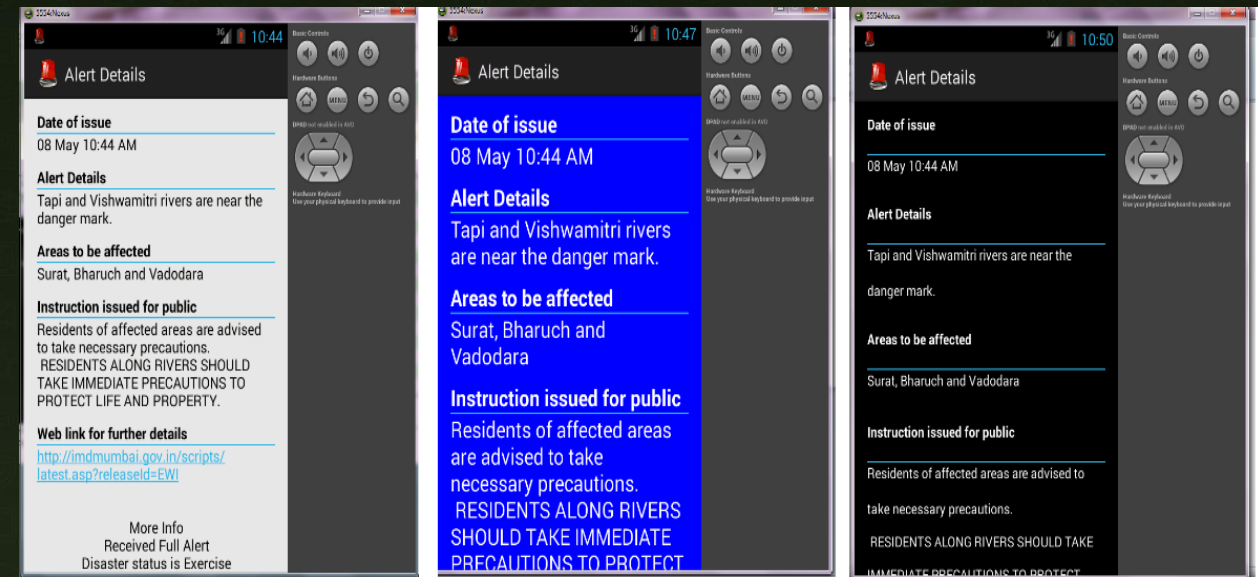




# Disaster Warning System

(Android based)

- Colleagues at UCL used the common format to adapt an android application on disaster warning system
- Developers used a program that takes the common profile format as input and generates fontsize and colour contrast as output for the application



# Disaster Warning System

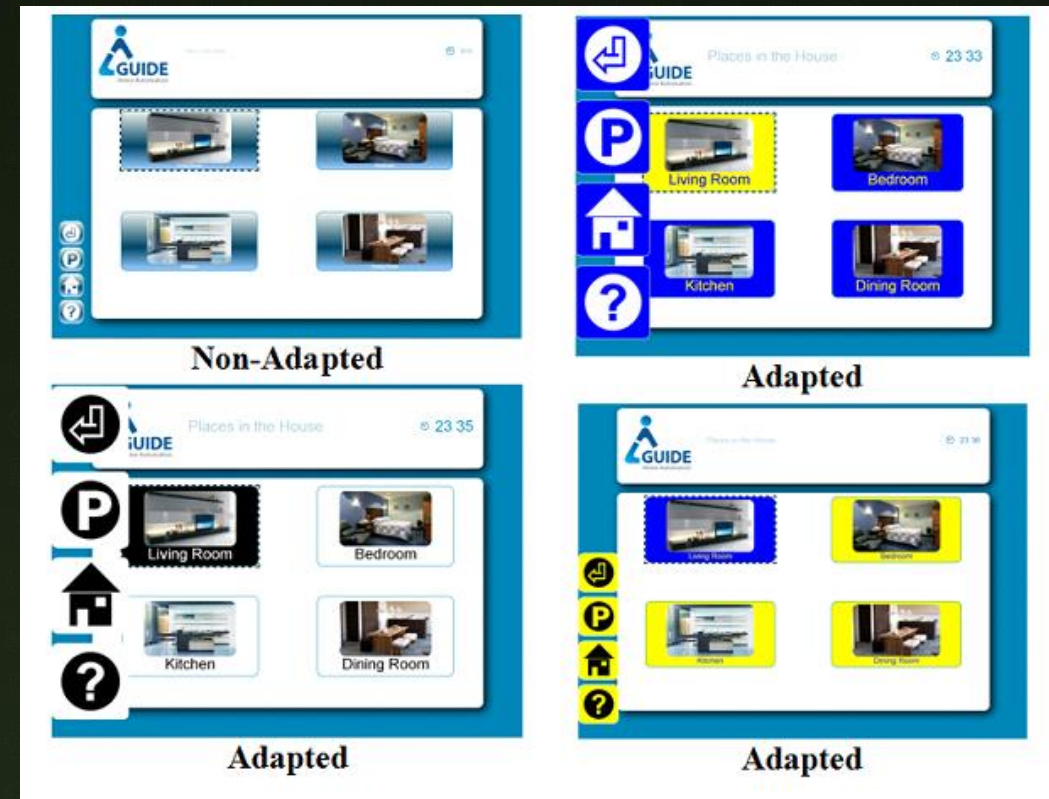
(Web based)

- A web based disaster reporting system used a web service based mapping mechanism
- The mapping mechanism chooses an appropriate stylesheet based on user profile
- Stylesheets can be pre-stored and can be added or edited based on requirement
- The common format does not specify how to adapt, just provide information to personalize



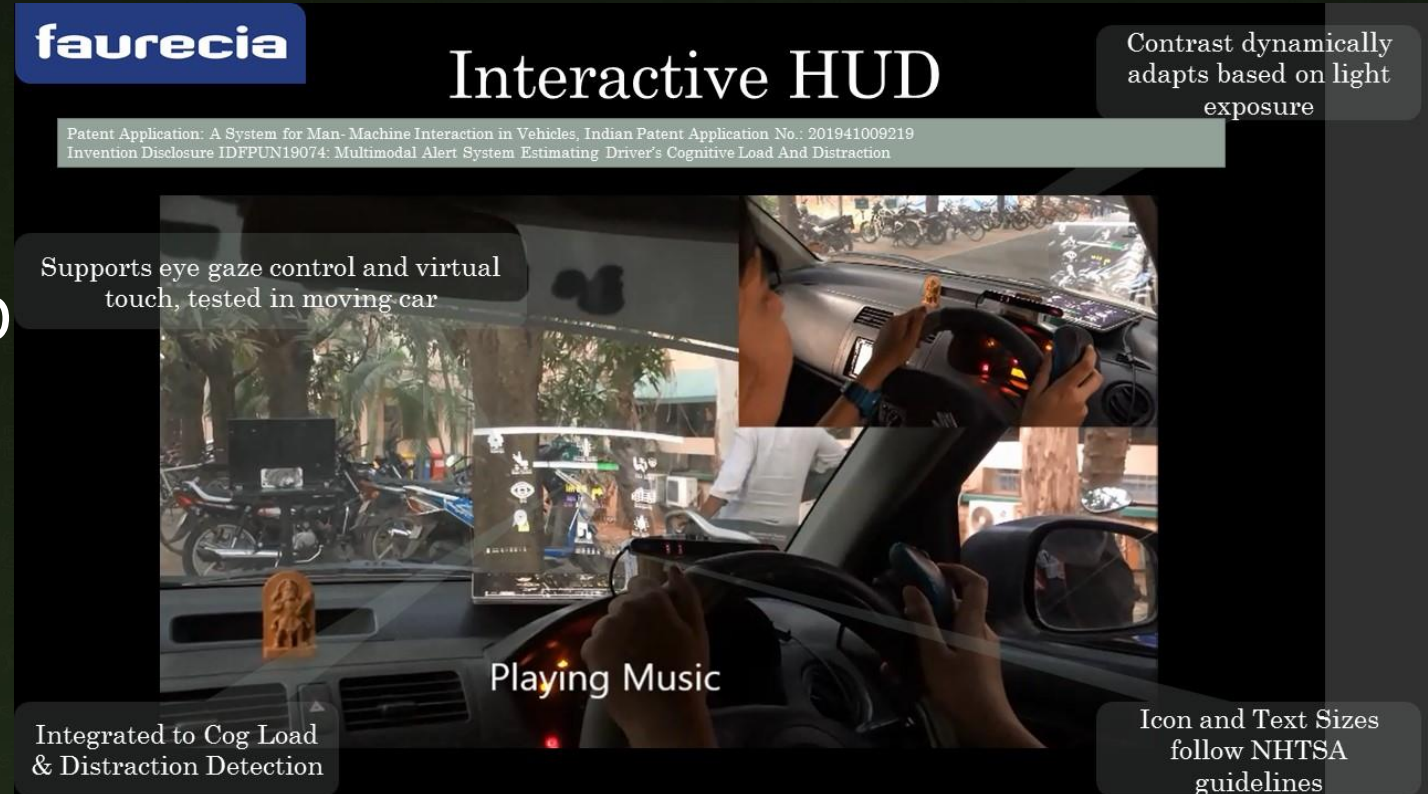
# Digital TV– Home Automation Application

- EU GUIDE project used the common profile format in developing a digital Set Top Box
- Presently known as HbbTV in Europe
- Common user profile format was used to adapt interface parameters at operating system level on a set top box
- Same application can rendered differently for different users
- Fusion algorithms were developed and tested when multiple user profiles needed to be merged



# Vehicular Case Study

- User Capability Profile
  - Driving Experience
  - Age
- Head Down and Head Up D
- Calibration Profile
- Anthropometric Details
- Context Profile
  - Road
  - Weather



**faurecia** Interactive HUD

Patent Application: A System for Man-Machine Interaction in Vehicles, Indian Patent Application No.: 201941009219  
Invention Disclosure IDFPUN19074: Multimodal Alert System Estimating Driver's Cognitive Load And Distraction

Contrast dynamically adapts based on light exposure

Supports eye gaze control and virtual touch, tested in moving car

Playing Music

Integrated to Cog Load & Distraction Detection

Icon and Text Sizes follow NHTSA guidelines



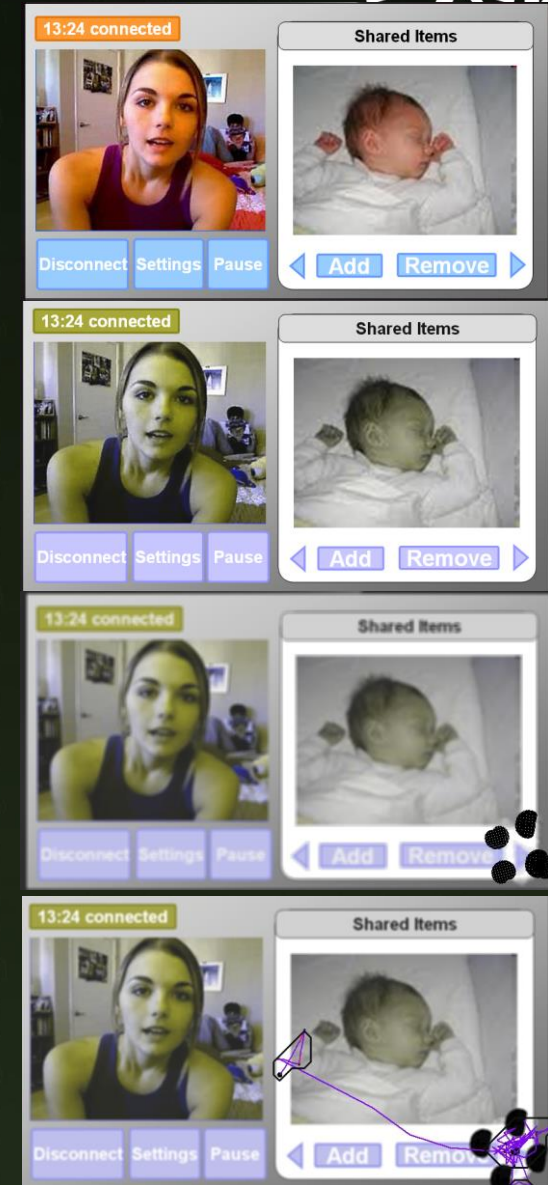
# Simulation

Simulation of visual / auditory perception and eye gaze and cursor movement of users

Developers can

- understand
- visualize
- measure effect of impairment on design

Validated **Inclusive User Model** that is validated for a wider range of abilities of users than existing work



# Conclusion

- Reducing digital divide
- Personalizing systems and services to promote accessibility
- Sharing personalizing information and meta data in secure and platform independent way
- Helping conformance to UN CRPD

I<sup>3</sup>D

## Intelligent Inclusive Interaction Design



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Robot follows user's gaze point on the screen. Also user can use 4-way controls for precise motion.











